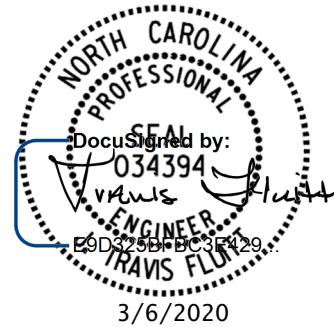


## MEMORANDUM

To: Mr. Danny Johnson, Town of Rolesville  
From: Travis Fluitt, P.E.  
Kimley-Horn and Associates, Inc.  
Date: March 6, 2020  
Subject: Young Street PUD – Updated Traffic Impact Analysis – Northern Development



Kimley-Horn has performed an update to the original Traffic Impact Analysis (TIA) dated June 2019 for the proposed Young Street PUD development located along both sides of the US 401 Bypass west of Young Street in Rolesville, North Carolina. As required by conditions in the approved special use permit, we have prepared this memorandum to summarize updated analyses related to the portion of the site located north of the US 401 Bypass and specific impacts along Virginia Water Drive and Genovesa Drive. No additional updates were required or performed for other portions of the development south of US 401 Bypass.

As referenced in the original TIA, the Young Street PUD was an update to the previously-approved Shearon/Byrum/Williams PUD, which included 250 townhomes (with approximately 210 of those located north of the US 401 Bypass), 650 single-family homes, and 10.82 acres of commercial space. The updated PUD allows for up to 320 townhomes, 621 single-family homes (with approximately 96 of those located north of the US 401 Bypass), and 12.28 acres of commercial space. Only the residential portions of the site are planned to be developed at this time. However, to be conservative, this analysis was performed for full build-out of the entire site including the commercial uses.

This report presents trip generation, distribution, and traffic analyses for study intersections north of the US 401 Bypass. The site location and proposed site plan are shown on **Figures 1** and **2**, respectively. **Figure 3** shows the existing roadway laneage at the two study intersections.

### Existing and Background Traffic

AM and PM peak hour turning movement counts were previously collected on January 29, 2019 at the following intersections when Wake County Public Schools were in session:

- Young Street at Virginia Water Drive
- Virginia Water Drive at Genovesa Drive

As turning movement counts were more than one year old when this updated analysis was performed, volumes were grown by 2% for one year to estimate existing study year (2020) volumes. The existing (2020) AM and PM peak hour turning movement volumes are shown on **Figures 4** and **5**, respectively.

While the portion of the development north of 401 Bypass is expected to be completed in 2025, a future study year of 2027 was used in this updated analysis to be consistent with the anticipated full build-out

of the entire site. Consistent with the original analysis, an annual growth factor of 2% was applied to the existing traffic volumes up to future study year (2027) to calculate background traffic volumes. Also consistent with the previous analysis, site traffic from three approved developments in the study area were included as background traffic: the Kalas Falls development, the Rogers Farm Subdivision, and the Watkins Family Property. Peak hour background traffic volumes, which include historic growth and approved development traffic, are shown on **Figures 4 and 5**.

## Trip Generation

The trip generation potential of the development was determined using the traffic generation rates published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Tenth Edition, 2017). The trip generation potential of the project is summarized in Table 1. As shown, the full build-out of the site with the commercial space has the potential to generate 10,838 new trips during a typical weekday with 794 new trips during the AM peak hour and 988 new trips during the PM peak hour.

Table 1 – The Point – Full Build-out ITE Traffic Generation (Vehicles)									
Land Use Code	Land Use	Intensity	Daily		AM Peak Hour		PM Peak Hour		
			In	Out	In	Out	In	Out	
<b>Development North of US 401 Bypass</b>									
210	Single Family Detached Housing	96	d.u.	501	501	18	55	62	36
<b>North Side Total Net New External Trips</b>				<b>501</b>	<b>501</b>	<b>18</b>	<b>55</b>	<b>62</b>	<b>36</b>
<b>Development South of US 401 Bypass</b>									
210	Single Family Detached Housing	525	d.u.	2,391	2,391	95	283	314	185
220	Multifamily Housing – Low-Rise	320	d.u.	1,189	1,189	33	111	105	61
820	Shopping Center	122,800	s.f.	3,457	3,457	132	81	304	329
Internal Capture (South Side Only)				<b>1,158</b>	<b>1,158</b>	<b>7</b>	<b>7</b>	<b>116</b>	<b>116</b>
Pass-by Reduction (South Side Only)				<b>961</b>	<b>961</b>	<b>0</b>	<b>0</b>	<b>93</b>	<b>83</b>
<b>South Side Total Net New External Trips</b>				<b>4,918</b>	<b>4,918</b>	<b>253</b>	<b>468</b>	<b>514</b>	<b>376</b>
<b>Total Net New External Trips – Commercial Build-out</b>				<b>5,419</b>	<b>5,419</b>	<b>271</b>	<b>523</b>	<b>576</b>	<b>412</b>

## Trip Distribution and Assignment

The proposed generated trips were assigned to the surrounding roadway network. The following distribution was used for the residential portion of the development north of US 401 Bypass:

- 35% to/from the west on Virginia Water Drive
- 25% to/from the west on US 401
- 10% to/from the east on US 401
- 20% to/from the north on Young Street
- 10% to/from the south on Young Street

The site traffic distribution and percent assignment for the portion of the development north of US 401 Bypass are shown on **Figure 6**. The attached **Figures 7** and **8** show the AM and PM peak hour site traffic volumes, respectively, as well as the total build-out peak hour traffic volumes.

## Capacity Analysis

Capacity analyses were performed using Synchro and SimTraffic Version 10 software. The LOS for the study intersections are summarized in Table 2. Existing peak hour factors (PHF) were used in the existing traffic condition, while a minimum PHF of 0.90 was used in the background and build-out traffic conditions.

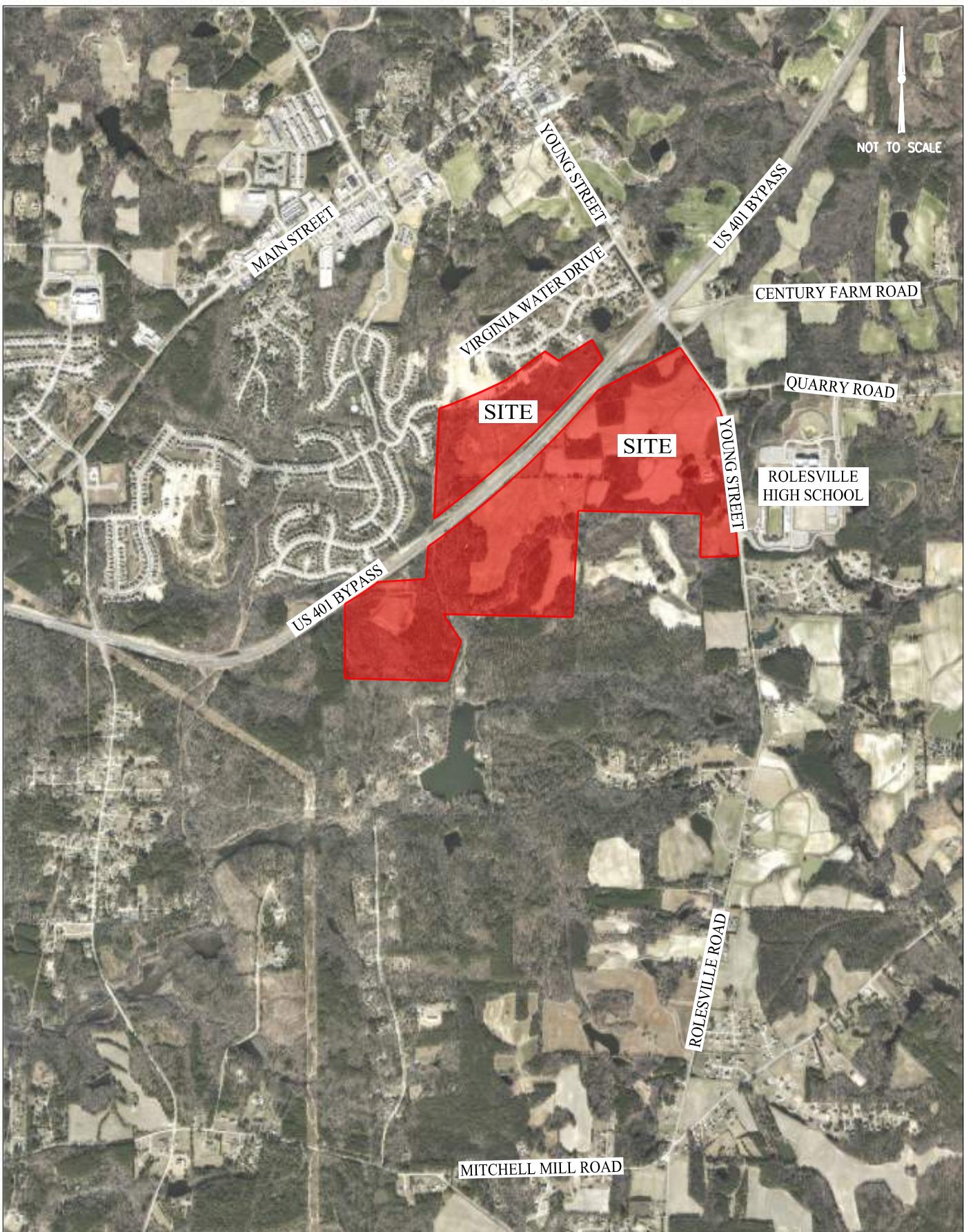
Table 2 Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
<b>Young Street at Virginia Water Drive (Unsignalized)</b>		
Existing (2020) Traffic	EB – B (14.4) NBL – A (8.4)	EB – B (12.9) NBL – A (8.2)
Background (2027) Traffic	EB – C (17.0) NBL – A (8.7)	EB – B (14.7) NBL – A (8.4)
Build-out (2027) Traffic	EB – C (22.2) NBL – A (8.9)	EB – C (18.8) NBL – A (8.9)
<b>Virginia Water Drive at Genovese Drive (Unsignalized)</b>		
Existing (2020) Traffic	NB – A (9.1) SB – A (9.1) EBL – A (7.3) WBL – A (7.3)	NB – A (9.3) SB – A (9.1) EBL – A (7.4) WBL – A (7.3)
Background (2027) Traffic	NB – A (9.1) SB – A (9.1) EBL – A (7.3) WBL – A (7.3)	NB – A (9.3) SB – A (9.2) EBL – A (7.4) WBL – A (7.3)
Proposed PUD Build-out (2027) Traffic	NB – A (9.2) SB – A (9.3) EBL – A (7.3) WBL – A (7.4)	NB – A (9.8) SB – A (9.9) EBL – A (7.4) WBL – A (7.5)

Analysis indicates that the study intersections are expected to operate at an acceptable level-of-service in the study year 2027 with or without the project in place. Increases in delays and queues are expected to be minor with the addition of site traffic, and SimTraffic simulations show that no queuing issues are expected at either of these study intersections.

## Recommendations

As these study intersections are expected to operate at an acceptable LOS at project build-out, and since the addition of site traffic associated with this project results in only minor increases in intersection delays and queues compared to the background traffic condition, no roadway improvements are recommended to be performed at either of these intersections to accommodate projected site traffic.

Should you have any questions or comments, please do not hesitate to contact me at (919) 653-2948 or [travis.fluitt@kimley-horn.com](mailto:travis.fluitt@kimley-horn.com).



**Kimley»Horn**

YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

SITE LOCATION

FIGURE  
1

## YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS

**Kimley»Horn**

FIGURE

2

## PRELIMINARY SITE PLAN

**WithersRavenel**  
Engineers | Planners | Surveyors

115 Madison Drive | Cary, NC 27511 | 919.460.5400 | fax 919.460.5432 | www.withersravenel.com

THE POINT YOUNG ST. PUD  
ROLESVILLE, NC

OVERALL PUD  
MASTERPLAN

Date No. 02.18.2010 Drawn by WLR  
Date 09.28.10 Designer WLR

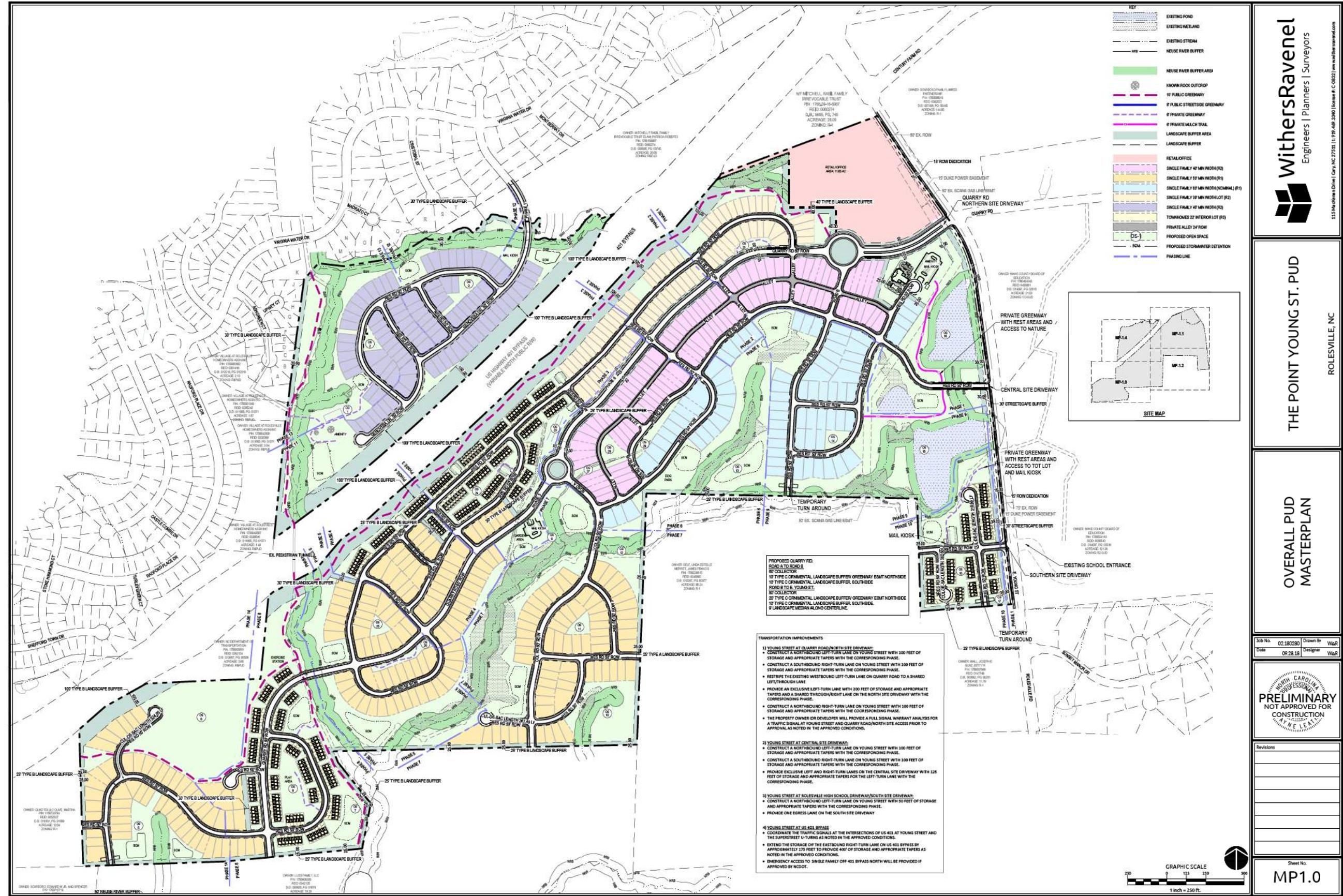
**PRELIMINARY  
NOT APPROVED FOR  
CONSTRUCTION**

Revisions

Sheet No. MP1.0

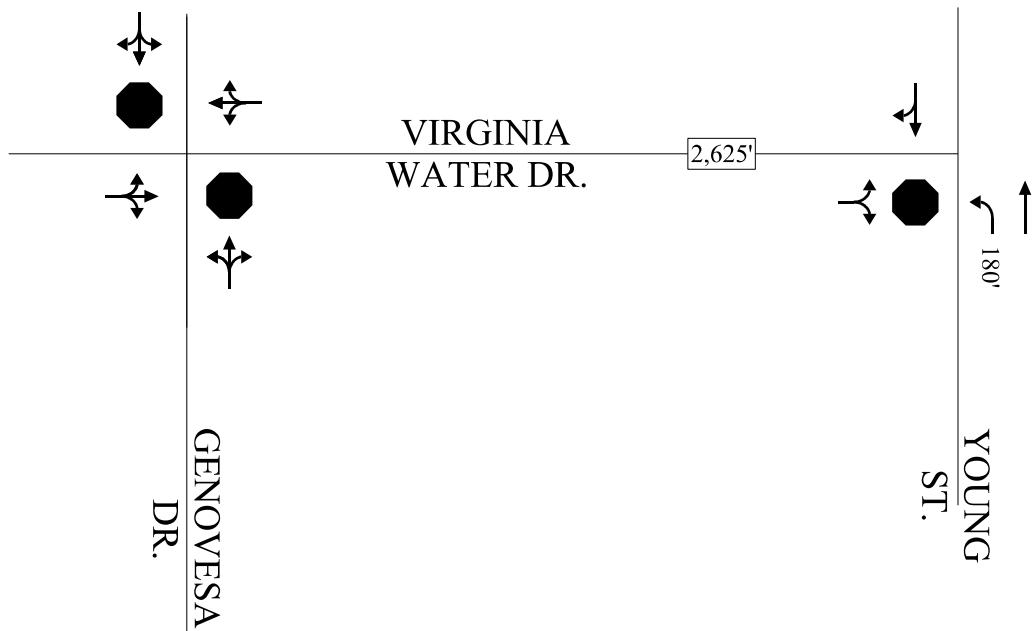
Graphic Scale

1 inch = 250 ft.





NOT TO SCALE

LEGEND

- ← EXISTING LANE
- EXISTING STOP SIGN
- EXISTING TRAFFIC SIGNAL
- XX' STORAGE LENGTH

Kimley»Horn

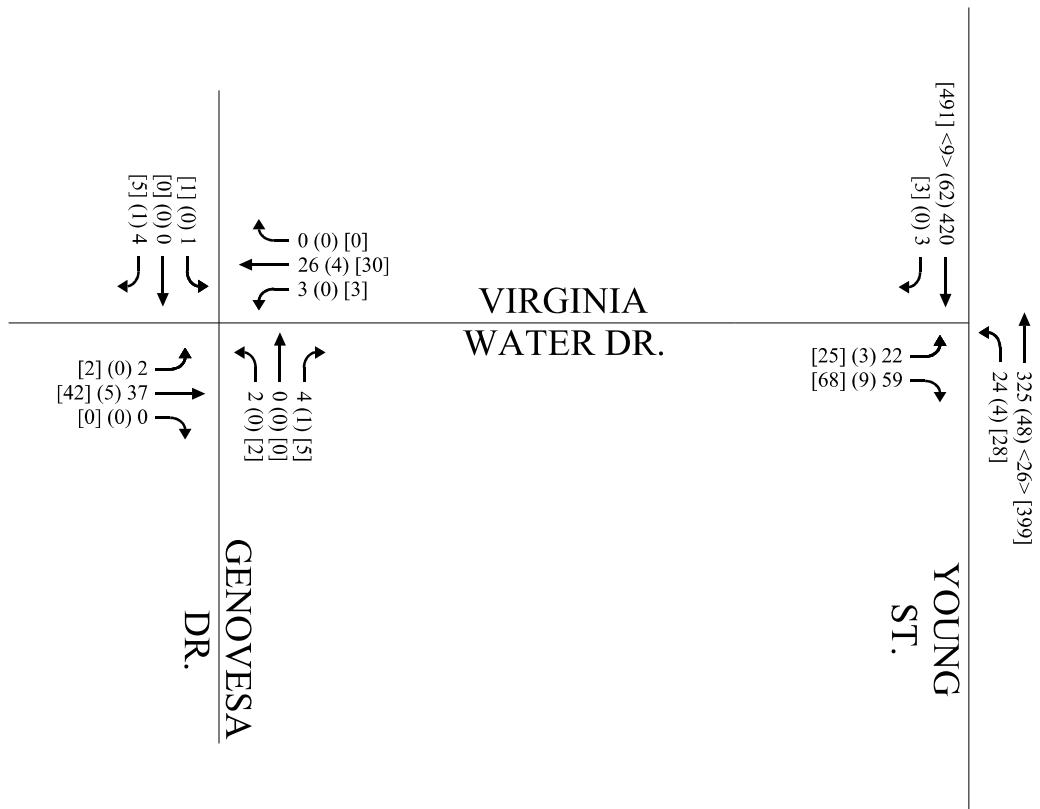
YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

EXISTING ROADWAY LANEAGE

FIGURE  
3



NOT TO SCALE



#### LEGEND

- XX EXISTING TRAFFIC
- (XX) BACKGROUND GROWTH
- <>> APPROVED DEVELOPMENT TRAFFIC
- [XX] TOTAL BACKGROUND TRAFFIC

**Kimley»Horn**

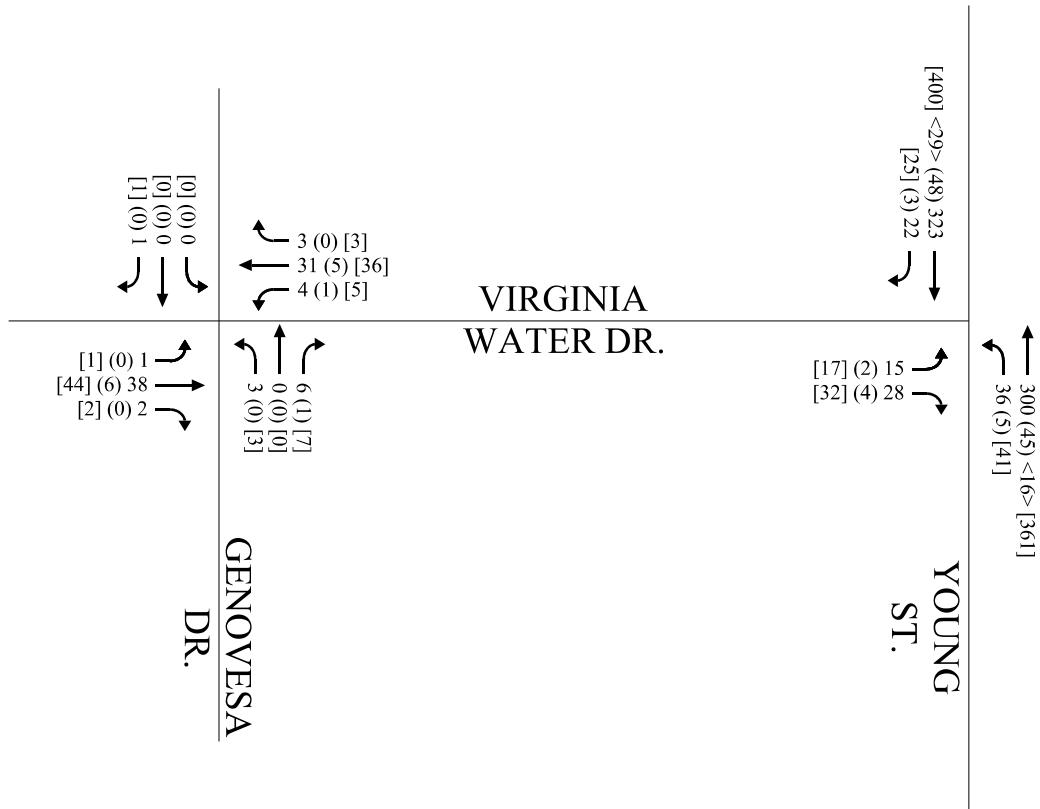
YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

EXISTING AND PROJECTED (2027)  
BACKGROUND AM PEAK HOUR  
TRAFFIC VOLUMES

FIGURE  
4



NOT TO SCALE



#### LEGEND

- XX EXISTING TRAFFIC
- (XX) BACKGROUND GROWTH
- <XX> APPROVED DEVELOPMENT TRAFFIC
- [XX] TOTAL BACKGROUND TRAFFIC

**Kimley»Horn**

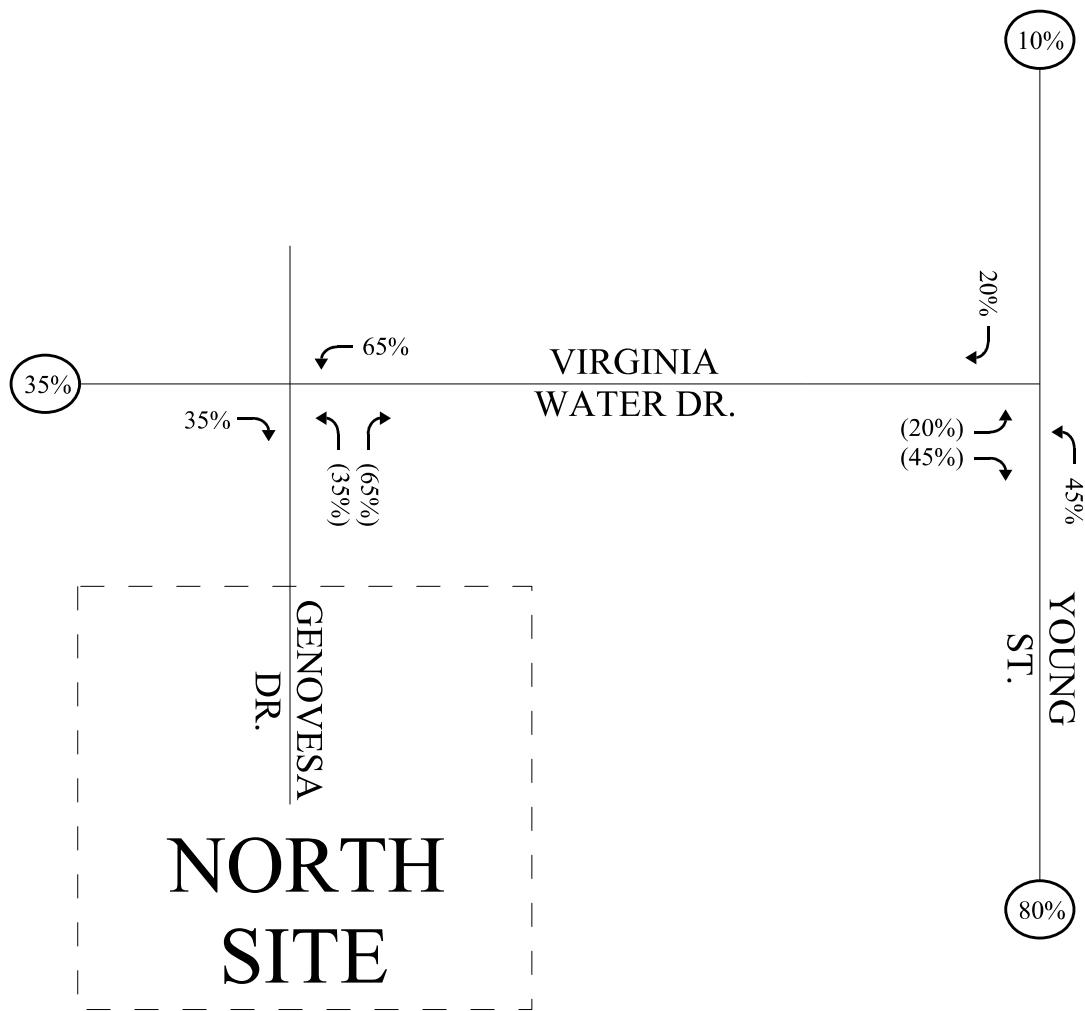
YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

EXISTING AND PROJECTED (2027)  
BACKGROUND PM PEAK HOUR  
TRAFFIC VOLUMES

FIGURE  
5



NOT TO SCALE



#### LEGEND

- XX% INBOUND PERCENT ASSIGNMENT
- (XX%) OUTBOUND PERCENT ASSIGNMENT
- (XX%) OVERALL DISTRIBUTION

**Kimley»Horn**

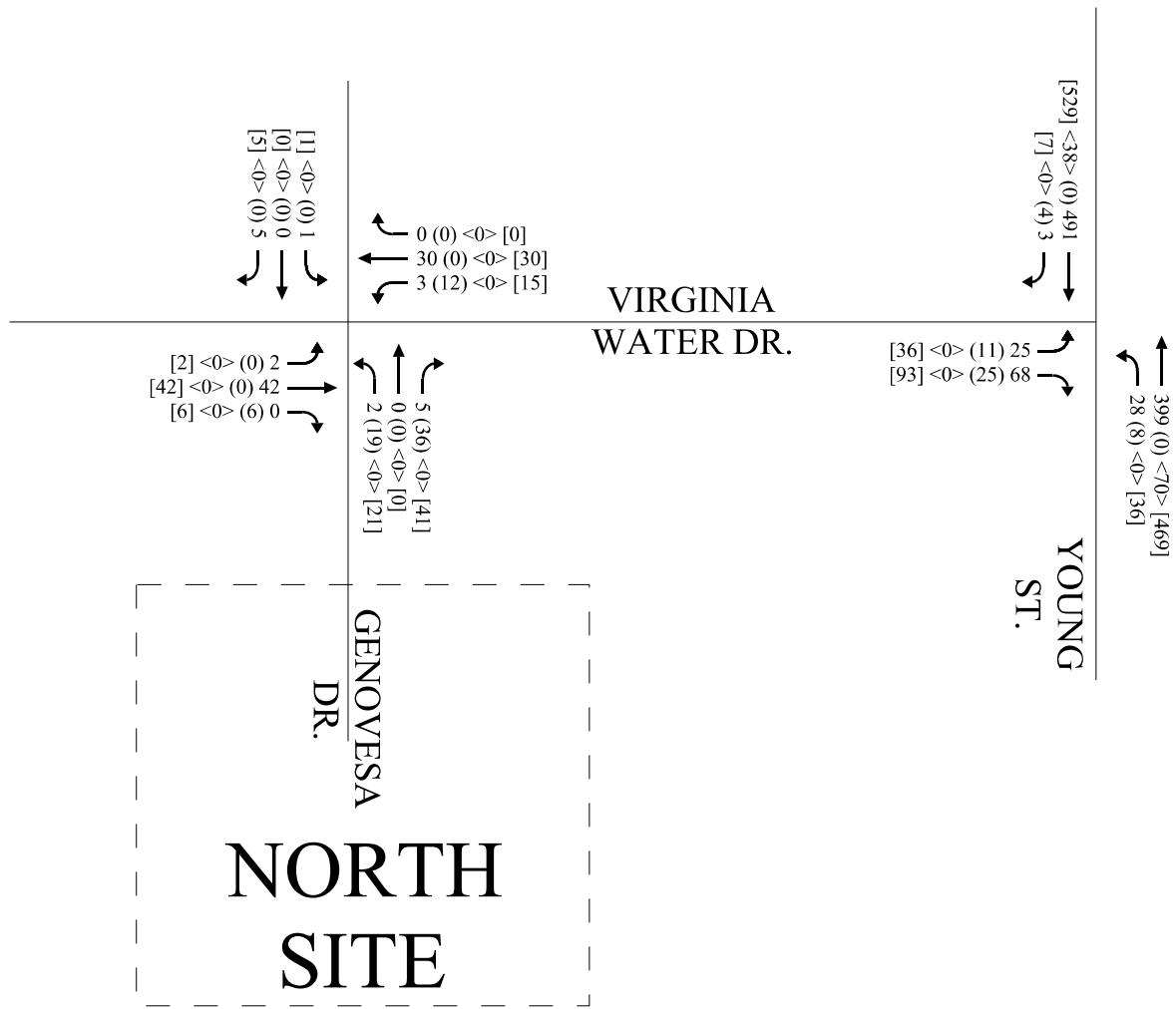
YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

SITE TRAFFIC DISTRIBUTION  
AND PERCENT ASSIGNMENT  
– SITE NORTH OF  
US-401 BYPASS

FIGURE  
6



NOT TO SCALE



#### LEGEND

- XX BACKGROUND TRAFFIC
- (XX) SITE TRAFFIC – NORTH SIDE
- <XX> SITE TRAFFIC – SOUTH SIDE
- [XX] TOTAL BUILD-OUT TRAFFIC

**Kimley»Horn**

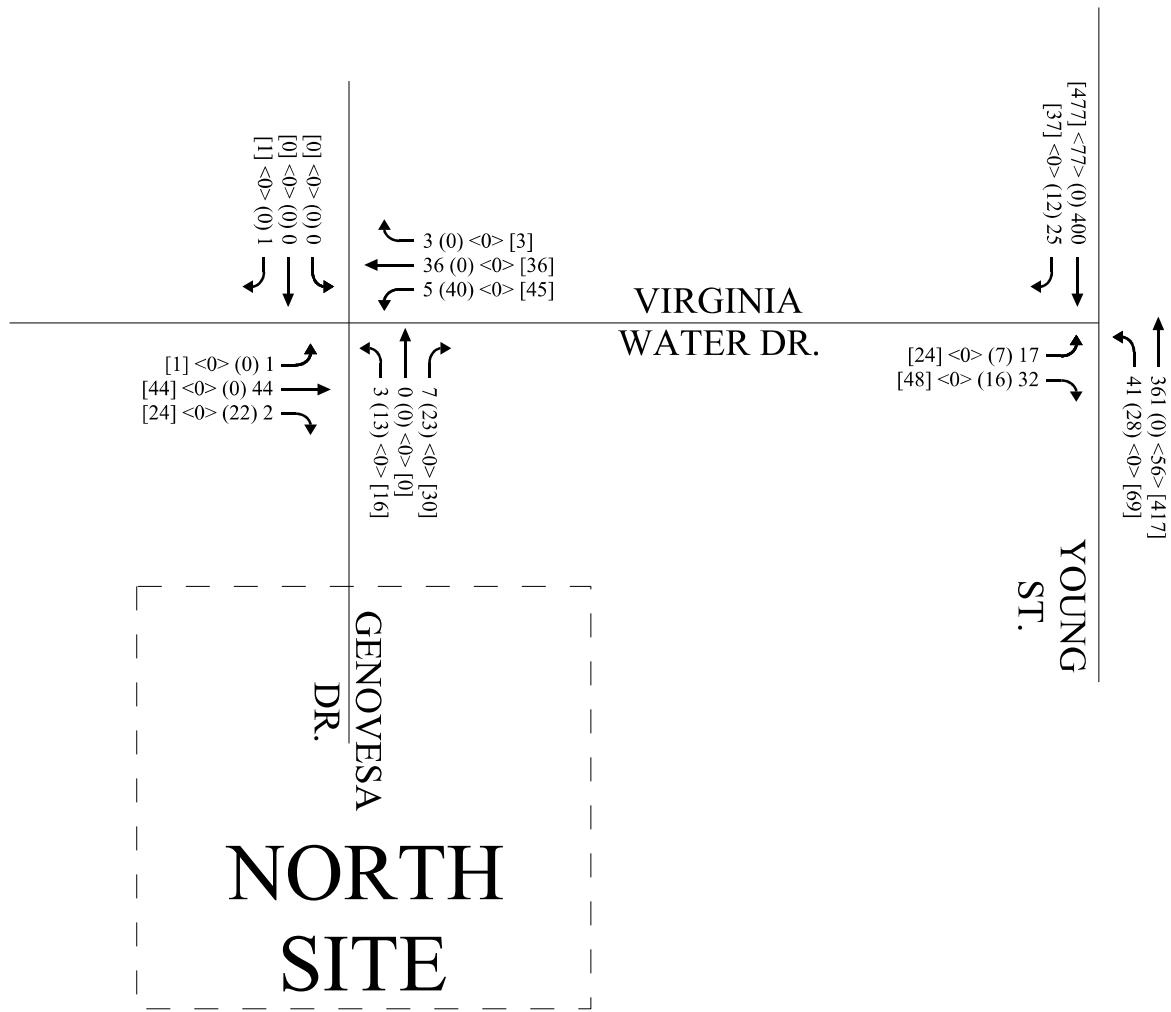
YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

PROJECTED (2027)  
BUILD-OUT AM PEAK HOUR  
TRAFFIC VOLUMES –  
FULL BUILD-OUT

FIGURE  
7



NOT TO SCALE



#### LEGEND

- XX BACKGROUND TRAFFIC
- (XX) SITE TRAFFIC – NORTH SIDE
- <> SITE TRAFFIC – SOUTH SIDE
- [XX] TOTAL BUILD-OUT TRAFFIC

**Kimley»Horn**

YOUNG STREET PUD  
ROLESVILLE, NC  
TRAFFIC IMPACT ANALYSIS

PROJECTED (2027)  
BUILD-OUT PM PEAK HOUR  
TRAFFIC VOLUMES –  
FULL BUILD-OUT

FIGURE  
8

Project ID: 19-09055-005

**Location:** Young St/Rolesville Rd & Virginia Water Dr  
**City:** Rolesville

Day: Tuesday  
Date: 01/29/2019

## **Groups Printed - Cars, PU, Vans - Heavy Trucks**

	Young St/Rolesville Rd Northbound								Young St/Rolesville Rd Southbound								Virginia Water Dr Eastbound								Virginia Water Dr Westbound							
Start Time	Left	Thru	Rgt	Uturn	Peds	App.Total	Left	Thru	Rgt	Uturn	Peds	App.Total	Left	Thru	Rgt	Uturn	Peds	App.Total	Left	Thru	Rgt	Uturn	Peds	App.Total	Int.	Total						
6:00 AM	4	18	0	0	0	22	0	43	0	0	0	43	1	0	8	0	0	9	0	0	0	0	0	0	74							
6:15 AM	1	33	0	0	0	34	0	47	2	0	0	49	2	0	11	0	0	13	0	0	0	0	0	0	96							
6:30 AM	2	49	0	0	0	51	0	78	2	0	0	80	1	0	18	0	0	19	0	0	0	0	0	0	150							
6:45 AM	4	56	0	0	0	60	0	150	0	0	0	150	6	0	31	0	0	37	0	0	0	0	0	0	247							
Total	11	156	0	0	0	167	0	318	4	0	0	322	10	0	68	0	0	78	0	0	0	0	0	0	567							
7:00 AM	5	89	0	0	0	94	0	87	1	0	0	88	3	0	12	0	1	15	0	0	0	0	0	0	197							
7:15 AM	8	95	0	0	0	103	0	65	0	0	0	65	6	0	8	0	0	14	0	0	0	0	0	0	182							
7:30 AM	7	79	0	0	0	86	0	110	2	0	0	112	7	0	7	0	0	14	0	0	0	0	0	0	212							
7:45 AM	6	55	0	0	0	61	0	102	5	0	0	107	5	0	3	0	0	8	0	0	0	0	0	0	176							
Total	26	318	0	0	0	344	0	364	8	0	0	372	21	0	30	0	1	51	0	0	0	0	0	0	767							
8:00 AM	1	49	0	0	0	50	0	71	3	0	0	74	1	0	5	0	1	6	0	0	0	0	0	0	130							
8:15 AM	4	56	0	0	0	60	0	55	4	0	0	59	3	0	2	0	0	5	0	0	0	0	0	0	124							
8:30 AM	4	45	0	0	0	49	0	45	1	0	0	46	8	0	9	0	0	17	0	0	0	0	0	0	112							
8:45 AM	0	50	0	0	0	50	0	57	6	0	0	63	1	0	3	0	0	4	0	0	0	0	0	0	117							
Total	9	200	0	0	0	209	0	228	14	0	0	242	13	0	19	0	1	32	0	0	0	0	0	0	483							

\*\*\*BREAK\*\*\*

4:00 PM	10	50	0	0	0	60	0	75	5	0	0	80	1	0	8	0	0	9	0	0	0	0	0	0	0	149
4:15 PM	6	71	1	0	0	78	1	83	9	0	0	93	3	0	10	0	0	13	0	0	0	0	0	0	0	184
4:30 PM	9	69	0	0	0	78	0	69	2	0	0	71	2	0	4	0	0	6	0	0	2	0	0	0	2	157
4:45 PM	14	77	0	0	0	91	0	65	5	0	0	70	8	0	8	0	0	16	0	0	0	0	0	0	0	177
Total	39	267	1	0	0	307	1	292	21	0	0	314	14	0	30	0	0	44	0	0	2	0	0	0	2	667
5:00 PM	6	77	0	0	0	83	0	100	6	0	0	106	2	0	5	0	0	7	0	0	0	0	0	0	0	196
5:15 PM	10	63	0	0	0	73	1	56	7	0	0	64	2	0	6	0	0	8	0	0	1	0	0	0	1	146
5:30 PM	11	84	0	0	0	95	0	69	7	0	0	76	3	0	5	0	0	8	0	0	0	0	0	0	0	179
5:45 PM	7	79	1	0	0	87	0	52	3	0	0	55	4	0	4	0	0	8	1	0	0	0	0	0	1	151
Total	34	303	1	0	0	338	1	277	23	0	0	301	11	0	20	0	0	31	1	0	1	0	0	0	2	672
Grand Total	119	1244	2	0	0	1365	2	1479	70	0	0	1551	69	0	167	0	2	236	1	0	3	0	0	4	0	3156
Apprch %	8.7	91.1	0.1	0.0	0.0		0.1	95.4	4.5	0.0	0.0		29.2	0.0	70.8	0.0	0.8		25.0	0.0	75.0	0.0	0.0			
Total %	3.8	39.4	0.1	0.0	0.0	43.3	0.1	46.9	2.2	0.0	0.0	49.1	2.2	0.0	5.3	0.0	0.1	7.5	0.0	0.0	0.1	0.0	0.0	0.1		
Cars, PU, Vans	112	1213	2	0	0	1327	2	1436	68	0	0	1506	66	0	163	0	0	229	1	0	3	0	0	4	0	3066
% Cars, PU, Vans	94.1	97.5	100.0	0.0	0.0	97.2	100.0	97.1	97.1	0.0	0.0	97.1	95.7	0.0	97.6	0.0	0.0	97.0	100.0	0.0	100.0	0.0	0.0	100.0	0.0	97.1
Heavy Trucks	7	31	0	0	0	38	0	43	2	0	0	45	3	0	4	0	0	7	0	0	0	0	0	0	0	90
% Heavy Trucks	5.9	2.5	0.0	0.0	0.0	2.8	0.0	2.9	2.9	0.0	0.0	2.9	4.3	0.0	2.4	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	

Project ID: 19-09055-005

**Location:** Young St/Rolesville Rd & Virginia Water Dr  
**City:** Rolesville

## PEAK HOURS

Day: Tuesday  
Date: 01/29/2019

Peak Hour Analysis from 06:00 AM to 10:00 AM

Peak Hour for Entire Intersection Begins at 06:45 AM

6:45 AM	4	56	0	0	60	0	150	0	0	150	6	0	31	0	37	0	0	0	0	0	247
7:00 AM	5	89	0	0	94	0	87	1	0	88	3	0	12	0	15	0	0	0	0	0	197
7:15 AM	8	95	0	0	103	0	65	0	0	65	6	0	8	0	14	0	0	0	0	0	182
7:30 AM	7	79	0	0	86	0	110	2	0	112	7	0	7	0	14	0	0	0	0	0	212
Total Volume	24	319	0	0	343	0	412	3	0	415	22	0	58	0	80	0	0	0	0	0	838
% App. Total	7.0	93.0	0.0	0.0	100	0.0	99.3	0.7	0.0	100	27.5	0.0	72.5	0.0	100	0.0	0.0	0.0	0.0	0	0.848
PHF					0.833					0.692					0.541						
Cars, PU, Vans	21	308	0	0	329	0	405	3	0	408	20	0	58	0	78	0	0	0	0	0	815
% Cars, PU, Vans	87.5	96.6	0.0	0.0	95.9	0.0	98.3	100.0	0.0	98.3	90.9	0.0	100.0	0.0	97.5	0.0	0.0	0.0	0.0	0	97.3
Heavy Trucks	3	11	0	0	14	0	7	0	0	7	2	0	0	0	2	0	0	0	0	0	23
%Heavy Trucks	12.5	3.4	0.0	0.0	4.1	0.0	1.7	0.0	0.0	1.7	9.1	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.7

**PM**

	Young St/Rolesville Rd Northbound					Young St/Rolesville Rd Southbound					Virginia Water Dr Eastbound					Virginia Water Dr Westbound						
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total	
Peak Hour Analysis from 04:00 PM to 06:00 PM																						
Peak Hour for Entire Intersection Begins at 04:15 PM																						
4:15 PM	6	71	1	0	78	1	83	9	0	93	3	0	10	0	13	0	0	0	0	0	184	
4:30 PM	9	69	0	0	78	0	69	2	0	71	2	0	4	0	6	0	0	2	0	2	157	
4:45 PM	14	77	0	0	91	0	65	5	0	70	8	0	8	0	16	0	0	0	0	0	177	
5:00 PM	6	77	0	0	83	0	100	6	0	106	2	0	5	0	7	0	0	0	0	0	196	
Total Volume	35	294	1	0	330	1	317	22	0	340	15	0	27	0	42	0	0	2	0	2	714	
% App. Total	10.6	89.1	0.3	0.0	100	0.3	93.2	6.5	0.0	100	35.7	0.0	64.3	0.0	100	0.0	0.0	100.0	0.0	100	0.250	0.911
PHF																						
Cars, PU, Vans	34	290	1	0	325	1	305	22	0	328	14	0	25	0	39	0	0	2	0	2	694	
% Cars, PU, Vans	97.1	98.6	100.0	0.0	98.5	100.0	96.2	100.0	0.0	96.5	93.3	0.0	92.6	0.0	92.9	0.0	0.0	100.0	0.0	100.0	97.2	
Heavy Trucks	1	4	0	0	5	0	12	0	0	12	1	0	2	0	3	0	0	0	0	0	20	
% Heavy Trucks	2.9	1.4	0.0	0.0	1.5	0.0	3.8	0.0	0.0	3.5	6.7	0.0	7.4	0.0	7.1	0.0	0.0	0.0	0.0	0.0	2.8	

Location: Young St/Rolesville Rd & Virginia Water Dr  
City: Rolesville  
Control: 1-Way Stop (EB)

Project ID: 19-09055-005  
Date: 1/29/2019

## Bikes

Location: Young St/Rolesville Rd & Virginia Water Dr  
 City: Rolesville

Project ID: 19-09055-005  
 Date: 1/29/2019

### Pedestrians (Crosswalks)

NS/EW Streets:	Young St/Rolesville Rd		Young St/Rolesville Rd		Virginia Water Dr		Virginia Water Dr		
<b>AM</b>	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		<b>TOTAL</b>
	EB	WB	EB	WB	NB	SB	NB	SB	
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	2	2
PEAK HR :	06:45 AM - 07:45 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	1	1
PEAK HR FACTOR :							0.250		0.250
<b>PM</b>	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		<b>TOTAL</b>
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0
PEAK HR :	04:15 PM - 05:15 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :							0.250		0.250

Project ID: 19-09055-006  
 Location: Genovesa Dr & Virginia Water Dr  
 City: Rolesville

Day: Tuesday  
 Date: 01/29/2019

**Groups Printed - Cars, PU, Vans - Heavy Trucks**

Start Time	Genovesa Dr Northbound					Genovesa Dr Southbound					Virginia Water Dr Eastbound					Virginia Water Dr Westbound										
	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total	
6:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	2	0	1	0	0	0	1	4
6:15 AM	0	0	0	0	0	0	1	0	1	0	1	2	0	6	0	0	0	0	6	0	2	0	0	0	2	10
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	10	0	5	0	0	0	5	15
6:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	18	0	0	0	0	18	0	4	0	0	0	4	23
Total	0	0	2	0	0	2	1	0	1	0	1	2	0	36	0	0	0	0	36	0	12	0	0	0	0	52
7:00 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	6	0	0	0	0	6	1	3	0	0	0	4	12
7:15 AM	1	0	1	0	0	2	1	0	2	0	1	3	1	6	0	0	0	0	7	0	10	0	0	0	10	22
7:30 AM	1	0	1	0	1	2	0	0	1	0	0	1	1	6	0	0	0	0	7	2	8	0	0	0	10	20
7:45 AM	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	8	0	0	0	9	10
Total	2	0	3	0	2	5	1	0	4	0	2	5	2	19	0	0	0	0	21	4	29	0	0	0	33	64
8:00 AM	0	0	0	0	0	0	1	0	1	0	0	2	0	3	0	0	0	0	3	0	5	0	0	0	5	10
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	1	0	0	2	4
8:30 AM	0	1	0	0	0	1	0	0	1	0	0	1	1	7	0	0	0	0	8	0	8	0	0	0	8	18
8:45 AM	1	0	0	0	0	1	1	0	0	0	0	1	0	5	0	0	0	0	5	0	4	0	0	0	4	11
Total	1	1	0	0	0	2	2	0	2	0	0	4	1	17	0	0	0	0	18	1	18	0	0	2	19	43

\*\*\*BREAK\*\*\*

4:00 PM	2	0	1	0	2	3	0	0	0	0	0	0	1	9	1	0	0	11	0	10	0	0	0	10	24	
4:15 PM	0	0	2	0	0	2	0	0	1	0	0	1	0	12	1	0	0	13	1	5	2	0	0	8	24	
4:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	8	1	0	0	9	15	
4:45 PM	0	0	3	0	0	3	0	0	0	0	0	0	0	11	0	0	0	11	3	7	0	0	0	10	24	
Total	3	0	6	0	2	9	0	0	1	0	0	1	1	37	2	0	0	40	4	30	3	0	0	37	87	
5:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	2	5	0	1	0	8	2	3	1	0	0	6	15
5:15 PM	2	0	0	0	0	2	0	0	0	0	0	0	0	6	1	0	0	7	1	1	0	0	0	2	11	
5:30 PM	1	0	0	0	0	1	1	0	0	0	0	0	1	1	4	0	0	5	0	12	0	0	0	12	19	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0	8	0	5	1	0	0	6	14
Total	3	0	1	0	0	4	1	0	0	0	0	1	3	22	2	1	0	28	3	21	2	0	0	26	59	
Grand Total	9	1	12	0	4	22	5	0	8	0	3	13	7	131	4	1	0	143	12	110	5	0	2	127	305	
Approch %	40.9	4.5	54.5	0.0	18.2		38.5	0.0	61.5	0.0	23.1		4.9	91.6	2.8	0.7	0.0	9.4	86.6	3.9	0.0	1.6				
Total %	3.0	0.3	3.9	0.0	1.3	7.2	1.6	0.0	2.6	0.0	1.0	4.3	2.3	43.0	1.3	0.3	0.0	46.9	3.9	36.1	1.6	0.0	0.7	41.6		
Cars, PU, Vans	9	0	10	0	4	19	5	0	7	3	12	7	128	3	1	0	139	10	105	5	2	120		290		
% Cars, PU, Vans	100.0	0.0	83.3	0.0	100.0	86.4	100.0	0.0	87.5	0.0	100.0	92.3	100.0	97.7	75.0	100.0	0.0	97.2	83.3	95.5	100.0	0.0	100.0	94.5	95.1	
Heavy Trucks	0	1	2	0	0	3	0	0	1	0	1	1	0	3	1	0	0	4	2	5	0	0	0	7	15	
%Heavy Trucks	0.0	100.0	16.7	0.0	0.0	13.6	0.0	0.0	12.5	0.0	0.0	7.7	0.0	2.3	25.0	0.0	0.0	2.8	16.7	4.5	0.0	0.0	0.0	5.5	4.9	

Project ID: 19-09055-006  
 Location: Genovesa Dr & Virginia Water Dr  
 City: Rolesville

Day: Tuesday  
 Date: 01/29/2019

AM

Start Time	Genovesa Dr Northbound					Genovesa Dr Southbound					Virginia Water Dr Eastbound					Virginia Water Dr Westbound									
	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total

Peak Hour Analysis from 06:00 AM to 10:00 AM

Peak Hour for Entire Intersection Begins at 06:45 AM

6:45 AM	0	0	1	0	1	0	0	1	0	1	0	18	0	0	0	18	0	4	0	0	0	4	23	
7:00 AM	0	0	1	0	1	0	0	1	0	1	0	6	0	0	0	6	1	3	0	0	0	4	12	
7:15 AM	1	0	1	0	2	1	0	2	0	3	1	6	0	0	0	7	0	10	0	0	0	10	22	
7:30 AM	1	0	1	0	2	0	0	1	0	1	1	6	0	0	0	7	0	2	8	0	0	0	20	
Total Volume	2	0	4	0	6	1	0	4	0	5	2	36	0	0	0	38	3	25	0	0	0	28	77	
% App. Total	33.3	0.0	66.7	0.0	100.0	20.0	0.0	80.0	0.0	100	5.3	94.7	0.0	0.0	100	10.7	89.3	0.0	0.0	100				
PHF			0.750						0.417						0.528					0.700			0.837	
Cars, PU, Vans	2	0	4	0	6	1	0	4	0	5	2	35	0	0	37	3	24	0	0	27			75	
% Cars, PU, Vans	100.0	0.0	100.0	0.0	100.0	100.0	0.0	100.0	0.0	100.0	100.0	97.2	0.0	0.0	97.4	100.0	96.0	0.0	0.0	96.4			97.4	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1		2
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	

PM

Start Time	Genovesa Dr Northbound					Genovesa Dr Southbound					Virginia Water Dr Eastbound					Virginia Water Dr Westbound									
	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total

Peak Hour Analysis from 04:00 PM to 06:00 PM

Peak Hour for Entire Intersection Begins at 04:00 PM

Location: Genovesa Dr & Virginia Water Dr  
 City: Rolesville  
 Control: 2-Way Stop (NB/SB)

Project ID: 19-09055-006  
 Date: 1/29/2019

### Bikes

NS/EW Streets:	Genovesa Dr				Genovesa Dr				Virginia Water Dr				Virginia Water Dr				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
AM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL 0
PEAK HR :	06:45 AM - 07:45 AM																TOTAL 0
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TOTAL 0
PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES : APPROACH %'s :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL 2
PEAK HR :	04:00 PM - 05:00 PM																TOTAL 2
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250

Location: Genovesa Dr & Virginia Water Dr  
 City: Rolesville

Project ID: 19-09055-006  
 Date: 1/29/2019

### Pedestrians (Crosswalks)

NS/EW Streets:	Genovesa Dr		Genovesa Dr		Virginia Water Dr		Virginia Water Dr		
<b>AM</b>	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		<b>TOTAL</b>
	EB	WB	EB	WB	NB	SB	NB	SB	
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	1	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	0	0	0	0	1
7:45 AM	1	0	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	2	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	2	1	1	1	2	0	0	0	7
66.67% 33.33%	50.00%	50.00%	100.00%	0.00%					
PEAK HR :	06:45 AM - 07:45 AM								TOTAL
PEAK HR VOL :	0	1	1	0	0	0	0	0	2
PEAK HR FACTOR :	0.250	0.250	0.250	0.250					0.500

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		<b>TOTAL</b>
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	0	0	0	2	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	0	0	0	2	0	0	0	0	2
0.00% 100.00%									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	2	0	0	0	0	2
PEAK HR FACTOR :			0.250	0.250					0.250

Young Street PUD											
Table 3 - Trip Generation - Full Build-out - Residential + Retail											
Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour			
		Total	In	Out	Total	In	Out	Total	In	Out	
<b>North Side</b>											
210 Single Family Detached Housing	96 d.u.	1,002	501	501	73	18	55	98	62	36	
<b>Total Net New External Trips - North Side</b>		<b>1,002</b>	<b>501</b>	<b>501</b>	<b>73</b>	<b>18</b>	<b>55</b>	<b>98</b>	<b>62</b>	<b>36</b>	
<b>South Side</b>											
210 Single Family Detached Housing	525 d.u.	4,782	2,391	2,391	378	95	283	499	314	185	
220 Multifamily Housing (Low-Rise)	320 d.u.	2,378	1,189	1,189	144	33	111	166	105	61	
820 Shopping Center	122,800 s.f.	6,914	3,457	3,457	213	132	81	633	304	329	
<b>South Side Subtotal</b>		<b>14,074</b>	<b>7,037</b>	<b>7,037</b>	<b>735</b>	<b>260</b>	<b>475</b>	<b>1,298</b>	<b>723</b>	<b>575</b>	
<i>Internal Capture</i>											
210 Single Family Detached Housing		774	462	312	5	2	3	87	64	23	
220 Multifamily Housing (Low-Rise)		384	229	155	2	1	1	29	22	7	
820 Shopping Center		1,158	467	691	7	4	3	116	30	86	
<b>Internal Capture Total</b>	<b>17.87%</b>	<b>2,316</b>	<b>1,158</b>	<b>1,158</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>232</b>	<b>116</b>	<b>116</b>	
<b>South Side Total External Trips</b>		<b>11,758</b>	<b>5,879</b>	<b>5,879</b>	<b>721</b>	<b>253</b>	<b>468</b>	<b>1,066</b>	<b>607</b>	<b>459</b>	
<i>Pass-By Traffic (ITE)</i>		<u>AM</u>	<u>PM</u>								
820 Shopping Center		0%	34%	1,922	961	961	0	0	176	93	83
<b>Total Net New External Trips - South Side</b>		<b>9,836</b>	<b>4,918</b>	<b>4,918</b>	<b>721</b>	<b>253</b>	<b>468</b>	<b>890</b>	<b>514</b>	<b>376</b>	
<b>Total Net New External Trips - Total Site</b>		<b>10,838</b>	<b>5,419</b>	<b>5,419</b>	<b>794</b>	<b>271</b>	<b>523</b>	<b>988</b>	<b>576</b>	<b>412</b>	

# Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour  
based on the *Trip Generation Handbook*, 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily  
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

## SUMMARY

GROSS TRIP GENERATION						
INPUT	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour
		Enter	Exit	Enter	Exit	Enter
	Office	0	0	0	0	0
	Retail	3,457	3,457	132	81	304
	Restaurant	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0
	Residential	3,580	3,580	128	394	419
	Hotel	0	0	0	0	0
		7,037	7,037	260	475	723
						575

INTERNAL TRIPS						
OUTPUT	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour
		Enter	Exit	Enter	Exit	Enter
	Office	0	0	0	0	0
	Retail	467	691	4	3	30
	Restaurant	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0
	Residential	691	467	3	4	86
	Hotel	0	0	0	0	0
		1,158	1,158	7	7	116
% Reduction		16.5%		1.9%		17.9%

EXTERNAL TRIPS						
OUTPUT	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour
		Enter	Exit	Enter	Exit	Enter
	Office	0	0	0	0	0
	Retail	2,990	2,766	128	78	274
	Restaurant	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0
	Residential	2,889	3,113	125	390	333
	Hotel	0	0	0	0	0
		5,879	5,879	253	468	607
						459

## INTERSECTION ANALYSIS SHEET

<b>Project:</b>	Young Street PUD
<b>Location:</b>	Rolesville, NC
<b>Scenario:</b>	Scenario #3 - Full Build-out
<b>Ct. Date:</b>	1/29/2019
<b>N/S Street:</b>	Young Street
<b>E/W Street:</b>	Virginia Water Drive

	AM In	AM Out	PM In	PM Out
<b>Total Net New Trips (North + South):</b>	271	523	576	412
<b>Total Pass-By Trips (North + South):</b>	0	0	93	83
North Side Net New Trips:	18	55	62	36
North Side Pass-By Trips:	0	0	0	0
South Side Net New Trips:	253	468	514	376
South Side Pass-By Trips:	0	0	93	83

<b>Annual Growth Rate:</b>	2.0%
<b>Growth Factor:</b>	0.148686

**Existing Year:** 2020  
**Buildout Year:** 2027

**AM PEAK HOUR**  
**AM PHF = 0.85**

<b>Description</b>	Virginia Water Drive <b>Eastbound</b>			Virginia Water Drive <b>Westbound</b>			Young Street <b>Northbound</b>			Young Street <b>Southbound</b>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
<b>2019 Traffic Count</b>	22	0	58	0	0	0	24	319	0	0	412	3
Growth to 2020	0	0	1	0	0	0	0	6	0	0	8	0
<b>2020 Existing Traffic</b>	22	0	59	0	0	0	24	325	0	0	420	3
Growth Factor (0.02 per year)	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
<b>2027 Background Growth</b>	3	0	9	0	0	0	4	48	0	0	62	0
<b>Committed Projects</b>												
Kalas Falls	0	0	0	0	0	0	0	12	0	0	4	0
Rogers Farm	0	0	0	0	0	0	0	6	0	0	2	0
Watkins Family Property	0	0	0	0	0	0	0	8	0	0	3	0
<b>Total Committed Traffic</b>	0	0	0	0	0	0	0	26	0	0	9	0
<b>2027 Background Traffic</b>	25	0	68	0	0	0	28	399	0	0	491	3
<b>Project Traffic - North Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%	20%
Inbound Project Traffic	0	0	0	0	0	0	8	0	0	0	0	4
Percent Assignment Outbound	20%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	11	0	25	0	0	0	0	0	0	0	0	0
<b>Total Traffic - North Side</b>	11	0	25	0	0	0	8	0	0	0	0	4
<b>Project Traffic - South Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	38	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	70	0	0	0	0
<b>Total Traffic - South Side</b>	0	0	0	0	0	0	0	70	0	0	38	0
<b>Total Project Traffic</b>	11	0	25	0	0	0	8	70	0	0	38	4
<b>2027 Buildout Total</b>	36	0	93	0	0	0	36	469	0	0	529	7
Percent Impact (Approach)			27.8%			-			15.4%			7.8%

Overall Percent Impact 13.3%

**PM PEAK HOUR**  
**PM PHF = 0.91**

<b>Description</b>	Virginia Water Drive <b>Eastbound</b>			Virginia Water Drive <b>Westbound</b>			Young Street <b>Northbound</b>			Young Street <b>Southbound</b>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
<b>2019 Traffic Count</b>	15	0	27	0	0	0	35	294	0	0	317	22
Growth to 2020	0	0	1	0	0	0	1	6	0	0	6	0
<b>2020 Existing Traffic</b>	15	0	28	0	0	0	36	300	0	0	323	22
Growth Factor (0.02 per year)	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
<b>2027 Background Growth</b>	2	0	4	0	0	0	5	45	0	0	48	3
<b>Committed Projects</b>												
Kalas Falls	0	0	0	0	0	0	0	8	0	0	13	0
Rogers Farm	0	0	0	0	0	0	0	3	0	0	7	0
Watkins Family Property	0	0	0	0	0	0	0	5	0	0	9	0
<b>Total Committed Traffic</b>	0	0	0	0	0	0	0	16	0	0	29	0
<b>2027 Background Traffic</b>	17	0	32	0	0	0	41	361	0	0	400	25
<b>Project Traffic - North Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	45.00%	0%	0%	0%	0%	20.00%
Inbound Project Traffic	0	0	0	0	0	0	28	0	0	0	0	12
Percent Assignment Outbound	20.00%	0%	45.00%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	7	0	16	0	0	0	0	0	0	0	0	0
<b>Total Traffic - North Side</b>	7	0	16	0	0	0	28	0	0	0	0	12
<b>Project Traffic - South Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15.00%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	77	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	15.00%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	56	0	0	0	0
<b>Total Traffic - South Side</b>	0	0	0	0	0	0	0	56	0	0	77	0
<b>Total Project Traffic</b>	7	0	16	0	0	0	28	56	0	0	77	12
<b>2027 Buildout Total</b>	24	0	48	0	0	0	69	417	0	0	477	37
Percent Impact (Approach)			32.0%			-			17.3%			17.3%

## INTERSECTION ANALYSIS SHEET

<b>Project:</b>	Young Street PUD
<b>Location:</b>	Rolesville, NC
<b>Scenario:</b>	Scenario #3 - Full Build-out
<b>Ct. Date:</b>	1/29/2019
<b>N/S Street:</b>	Genovesa Drive
<b>E/W Street:</b>	Virginia Water Drive

	AM In	AM Out	PM In	PM Out
<b>Total Net New Trips (North + South):</b>	271	523	576	412
<b>Total Pass-By Trips (North + South):</b>	0	0	93	83
North Side Net New Trips:	18	55	62	36
North Side Pass-By Trips:	0	0	0	0
South Side Net New Trips:	253	468	514	376
South Side Pass-By Trips:	0	0	93	83

**Annual Growth Rate:** 2.0%      **Existing Year:** 2020  
**Growth Factor:** 0.148686      **Buildout Year:** 2027

**AM PEAK HOUR**  
**AM PHF =** 0.84

<b>Description</b>	Virginia Water Drive <b>Eastbound</b>			Virginia Water Drive <b>Westbound</b>			Genovesa Drive <b>Northbound</b>			Genovesa Drive <b>Southbound</b>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
<b>2019 Traffic Count</b>	2	36	0	3	25	0	2	0	4	1	0	4
Count Balancing	0	1	0	0	1	0	0	0	0	0	0	0
<b>2020 Existing Traffic</b>	2	37	0	3	26	0	2	0	4	1	0	4
Growth Factor (0.02 per year)	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
<b>2027 Background Growth</b>	0	5	0	0	4	0	0	0	1	0	0	1
<b>Committed Projects</b>												
Kalas Falls	0	0	0	0	0	0	0	0	0	0	0	0
Rogers Farm	0	0	0	0	0	0	0	0	0	0	0	0
Watkins Family Property	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Committed Traffic</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>2027 Background Traffic</b>	2	42	0	3	30	0	2	0	5	1	0	5
<b>Project Traffic - North Side</b>												
Percent Assignment Inbound	0%	0%	35%	65%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	6	12	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	35%	0%	65%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	19	0	36	0	0	0
<b>Total Traffic - North Side</b>	0	0	6	12	0	0	19	0	36	0	0	0
<b>Project Traffic - South Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Traffic - South Side</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Project Traffic</b>	0	0	6	12	0	0	19	0	36	0	0	0
<b>2027 Buildout Total</b>	2	42	6	15	30	0	21	0	41	1	0	5
Percent Impact (Approach)		12.1%			26.9%			88.5%			0.0%	

Overall Percent Impact 44.9%

**PM PEAK HOUR**  
**PM PHF =** 0.91

<b>Description</b>	Virginia Water Drive <b>Eastbound</b>			Virginia Water Drive <b>Westbound</b>			Genovesa Drive <b>Northbound</b>			Genovesa Drive <b>Southbound</b>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
<b>2019 Traffic Count</b>	1	37	2	4	30	3	3	0	6	0	0	1
Count Balancing	0	1	0	0	1	0	0	0	0	0	0	0
<b>2020 Existing Traffic</b>	1	38	2	4	31	3	3	0	6	0	0	1
Growth Factor (0.02 per year)	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
<b>2027 Background Growth</b>	0	6	0	1	5	0	0	0	1	0	0	0
<b>Committed Projects</b>												
Kalas Falls	0	0	0	0	0	0	0	0	0	0	0	0
Rogers Farm	0	0	0	0	0	0	0	0	0	0	0	0
Watkins Family Property	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Committed Traffic</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>2027 Background Traffic</b>	1	44	2	5	36	3	3	0	7	0	0	1
<b>Project Traffic - North Side</b>												
Percent Assignment Inbound	0%	0%	35.00%	65.00%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	22	40	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	35.00%	0%	65.00%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	13	0	23	0	0	0
<b>Total Traffic - North Side</b>	0	0	22	40	0	0	13	0	23	0	0	0
<b>Project Traffic - South Side</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Traffic - South Side</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Project Traffic</b>	0	0	22	40	0	0	13	0	23	0	0	0
<b>2027 Buildout Total</b>	1	44	24	45	36	3	16	0	30	0	0	1
Percent Impact (Approach)		32.0%			47.8%			78.0%			0.0%	

Overall Percent Impact 49.1%



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		T	↑	↔	
Traffic Volume (vph)	22	59	24	325	420	4
Future Volume (vph)	22	59	24	325	420	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1640	0	1736	1827	1861	0
Flt Permitted	0.987		0.950			
Satd. Flow (perm)	1640	0	1736	1827	1861	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%		0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	27	361	471	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.9%

ICU Level of Service A

Analysis Period (min) 15

**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	22	59	24	325	420	4
Future Vol, veh/h	22	59	24	325	420	4
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	4	4	2	2
Mvmt Flow	24	66	27	361	467	4

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	885	470	472	0	-	0
Stage 1	470	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.14	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.236	-	-	-
Pot Cap-1 Maneuver	314	591	1079	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	306	590	1078	-	-	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	14.4	0.6	0
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HCM LOS	B
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1078	-	471	-	-
HCM Lane V/C Ratio	0.025	-	0.191	-	-
HCM Control Delay (s)	8.4	-	14.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Young Street PUD - North Side Analysis (3/2020)

Existing AM (2020)

03/03/2020

6: Genovesa Drive & Virginia Water Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	37	4	4	26	4	4	4	4	4	4	4
Future Volume (vph)	4	37	4	4	26	4	4	4	4	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1817	0	0	1791	0	0	1750	0	0	1750	0
Flt Permitted		0.996			0.995			0.984			0.984	
Satd. Flow (perm)	0	1817	0	0	1791	0	0	1750	0	0	1750	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	37	0	0	12	0	0	12	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.7%

ICU Level of Service A

Analysis Period (min) 15

## Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	37	4	4	26	4	4	4	4	4	4	4
Future Vol, veh/h	4	37	4	4	26	4	4	4	4	4	4	4
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	4	4	4	2	2	2	2	2	2
Mvmt Flow	4	41	4	4	29	4	4	4	4	4	4	4

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	34	0	0	46	0	0	95	94	44	95	94	32
Stage 1	-	-	-	-	-	-	52	52	-	40	40	-
Stage 2	-	-	-	-	-	-	43	42	-	55	54	-
Critical Hdwy	4.13	-	-	4.14	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.227	-	-	2.236	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1571	-	-	1549	-	-	888	796	1026	888	796	1042
Stage 1	-	-	-	-	-	-	961	852	-	975	862	-
Stage 2	-	-	-	-	-	-	971	860	-	957	850	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1570	-	-	1548	-	-	876	790	1025	876	790	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	876	790	-	876	790	-
Stage 1	-	-	-	-	-	-	957	849	-	971	859	-
Stage 2	-	-	-	-	-	-	959	857	-	945	847	-

Approach	EB	WB			NB			SB					
HCM Control Delay, s	0.6	0.9			9.1			9.1					
HCM LOS					A			A					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	887	1570	-	-	1548	-	-	891					
HCM Lane V/C Ratio	0.015	0.003	-	-	0.003	-	-	0.015					
HCM Control Delay (s)	9.1	7.3	0	-	7.3	0	-	9.1					
HCM Lane LOS	A	A	A	-	A	A	-	A					
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0					



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Volume (vph)	15	28	36	300	323	22
Future Volume (vph)	15	28	36	300	323	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1590	0	1770	1863	1810	0
Flt Permitted	0.983		0.950			
Satd. Flow (perm)	1590	0	1770	1863	1810	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	40	330	379	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 35.0%

ICU Level of Service A

Analysis Period (min) 15

**Intersection**

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	15	28	36	300	323	22
Future Vol, veh/h	15	28	36	300	323	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	7	2	2	4	4
Mvmt Flow	16	31	40	330	355	24

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	777	367	379	0	-
Stage 1	367	-	-	-	-
Stage 2	410	-	-	-	-
Critical Hdwy	6.47	6.27	4.12	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.218	-	-
Pot Cap-1 Maneuver	358	667	1179	-	-
Stage 1	690	-	-	-	-
Stage 2	659	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	346	667	1179	-	-
Mov Cap-2 Maneuver	346	-	-	-	-
Stage 1	667	-	-	-	-
Stage 2	659	-	-	-	-

**Approach**

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1179	-	504	-	-
HCM Lane V/C Ratio	0.034	-	0.094	-	-
HCM Control Delay (s)	8.2	-	12.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

## Young Street PUD - North Side Analysis (3/2020)

Existing PM (2020)

## 6: Genovesa Drive &amp; Virginia Water Drive

03/03/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	38	4	4	31	4	4	4	6	4	4	4
Future Volume (vph)	4	38	4	4	31	4	4	4	6	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1733	0	0	1812	0	0	1440	0	0	1750	0
Flt Permitted		0.996			0.995			0.987			0.984	
Satd. Flow (perm)	0	1733	0	0	1812	0	0	1440	0	0	1750	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	22%	22%	22%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	42	0	0	15	0	0	12	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.0%

ICU Level of Service A

Analysis Period (min) 15

## Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	+	+	+	+	+	+	+	+	+	+	+	+
Traffic Vol, veh/h	4	38	4	4	31	4	4	4	6	4	4	4
Future Vol, veh/h	4	38	4	4	31	4	4	4	6	4	4	4
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	8	8	8	3	3	3	22	22	22	2	2	2
Mvmt Flow	4	42	4	4	34	4	4	4	7	4	4	4

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	38	0	0	48	0	0	102	100	46	102	100	36
Stage 1	-	-	-	-	-	-	54	54	-	44	44	-
Stage 2	-	-	-	-	-	-	48	46	-	58	56	-
Critical Hdwy	4.18	-	-	4.13	-	-	7.32	6.72	6.42	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Follow-up Hdwy	2.272	-	-	2.227	-	-	3.698	4.198	3.498	3.518	4.018	3.318
Pot Cap-1 Maneuver	1534	-	-	1553	-	-	833	754	969	879	790	1037
Stage 1	-	-	-	-	-	-	910	812	-	970	858	-
Stage 2	-	-	-	-	-	-	917	819	-	954	848	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1534	-	-	1550	-	-	821	748	967	865	784	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-	821	748	-	865	784	-
Stage 1	-	-	-	-	-	-	905	808	-	967	855	-
Stage 2	-	-	-	-	-	-	906	817	-	940	844	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.6	0.8		9.3		9.1		
HCM LOS				A		A		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	852	1534	-	-	1550	-	-	883
HCM Lane V/C Ratio	0.018	0.003	-	-	0.003	-	-	0.015
HCM Control Delay (s)	9.3	7.4	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		T	↑	↓	
Traffic Volume (vph)	25	68	28	399	491	4
Future Volume (vph)	25	68	28	399	491	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1640	0	1736	1827	1861	0
Flt Permitted	0.987		0.950			
Satd. Flow (perm)	1640	0	1736	1827	1861	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	31	443	550	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	↑	
Traffic Vol, veh/h	25	68	28	399	491	4
Future Vol, veh/h	25	68	28	399	491	4
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	4	4	2	2
Mvmt Flow	28	76	31	443	546	4

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1054	549	551	0	-
Stage 1	549	-	-	-	-
Stage 2	505	-	-	-	-
Critical Hdwy	6.43	6.23	4.14	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.236	-	-
Pot Cap-1 Maneuver	249	534	1009	-	-
Stage 1	577	-	-	-	-
Stage 2	604	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	241	533	1008	-	-
Mov Cap-2 Maneuver	241	-	-	-	-
Stage 1	559	-	-	-	-
Stage 2	603	-	-	-	-

Approach EB NB SB

HCM Control Delay, s 17 0.6 0

HCM LOS C

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1008	-	402	-	-
HCM Lane V/C Ratio	0.031	-	0.257	-	-
HCM Control Delay (s)	8.7	-	17	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

## Young Street PUD - North Side Analysis (3/2020)

## 6: Genovesa Drive &amp; Virginia Water Drive

Background AM (2027)

03/03/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	42	4	4	30	4	4	4	5	4	4	5
Future Volume (vph)	4	42	4	4	30	4	4	4	5	4	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1819	0	0	1794	0	0	1730	0	0	1730	0
Flt Permitted		0.996			0.995			0.986			0.986	
Satd. Flow (perm)	0	1819	0	0	1794	0	0	1730	0	0	1730	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	41	0	0	14	0	0	14	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.7%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	42	4	4	30	4	4	4	5	4	4	5
Future Vol, veh/h	4	42	4	4	30	4	4	4	5	4	4	5
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	4	4	4	2	2	2	2	2	2
Mvmt Flow	4	47	4	4	33	4	4	4	6	4	4	6

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	38	0	0	52	0	0	106	104	50	106	104	36
Stage 1	-	-	-	-	-	-	58	58	-	44	44	-
Stage 2	-	-	-	-	-	-	48	46	-	62	60	-
Critical Hdwy	4.13	-	-	4.14	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.227	-	-	2.236	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1566	-	-	1541	-	-	873	786	1018	873	786	1037
Stage 1	-	-	-	-	-	-	954	847	-	970	858	-
Stage 2	-	-	-	-	-	-	965	857	-	949	845	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1565	-	-	1540	-	-	860	780	1017	860	780	1036
Mov Cap-2 Maneuver	-	-	-	-	-	-	860	780	-	860	780	-
Stage 1	-	-	-	-	-	-	950	844	-	966	855	-
Stage 2	-	-	-	-	-	-	952	854	-	936	842	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.6	0.8		9.1		9.1		
HCM LOS				A		A		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	885	1565	-	-	1540	-	-	890
HCM Lane V/C Ratio	0.016	0.003	-	-	0.003	-	-	0.016
HCM Control Delay (s)	9.1	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Volume (vph)	17	32	41	361	400	25
Future Volume (vph)	17	32	41	361	400	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1592	0	1770	1863	1812	0
Flt Permitted	0.983		0.950			
Satd. Flow (perm)	1592	0	1770	1863	1812	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	45	397	467	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑	R	
Traffic Vol, veh/h	17	32	41	361	400	25
Future Vol, veh/h	17	32	41	361	400	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	7	2	2	4	4
Mvmt Flow	19	35	45	397	440	27

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	941	454	467	0	-
Stage 1	454	-	-	-	-
Stage 2	487	-	-	-	-
Critical Hdwy	6.47	6.27	4.12	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.218	-	-
Pot Cap-1 Maneuver	286	596	1094	-	-
Stage 1	629	-	-	-	-
Stage 2	608	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	274	596	1094	-	-
Mov Cap-2 Maneuver	274	-	-	-	-
Stage 1	603	-	-	-	-
Stage 2	608	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1094	-	423	-	-
HCM Lane V/C Ratio	0.041	-	0.127	-	-
HCM Control Delay (s)	8.4	-	14.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

## Young Street PUD - North Side Analysis (3/2020)

## 6: Genovesa Drive &amp; Virginia Water Drive

Background PM (2027)

03/03/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	44	4	5	36	4	4	4	7	4	4	4
Future Volume (vph)	4	44	4	5	36	4	4	4	7	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1735	0	0	1815	0	0	1434	0	0	1750	0
Flt Permitted		0.996			0.995			0.988			0.984	
Satd. Flow (perm)	0	1735	0	0	1815	0	0	1434	0	0	1750	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	22%	22%	22%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	0	49	0	0	16	0	0	12	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	44	4	5	36	4	4	4	7	4	4	4
Future Vol, veh/h	4	44	4	5	36	4	4	4	7	4	4	4
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	8	8	8	3	3	3	22	22	22	2	2	2
Mvmt Flow	4	48	4	5	40	4	4	4	8	4	4	4

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	44	0	0	54	0	0	116	114	52	116	114	42
Stage 1	-	-	-	-	-	-	60	60	-	52	52	-
Stage 2	-	-	-	-	-	-	56	54	-	64	62	-
Critical Hdwy	4.18	-	-	4.13	-	-	7.32	6.72	6.42	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Follow-up Hdwy	2.272	-	-	2.227	-	-	3.698	4.198	3.498	3.518	4.018	3.318
Pot Cap-1 Maneuver	1527	-	-	1545	-	-	816	740	962	861	776	1029
Stage 1	-	-	-	-	-	-	903	807	-	961	852	-
Stage 2	-	-	-	-	-	-	908	812	-	947	843	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1527	-	-	1542	-	-	804	734	960	846	770	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	804	734	-	846	770	-
Stage 1	-	-	-	-	-	-	898	803	-	958	849	-
Stage 2	-	-	-	-	-	-	897	810	-	931	839	-

Approach	EB	WB		NB		SB		
HCM Control Delay, s	0.6	0.8		9.3		9.2		
HCM LOS				A		A		
<hr/>								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	847	1527	-	-	1542	-	-	869
HCM Lane V/C Ratio	0.019	0.003	-	-	0.004	-	-	0.015
HCM Control Delay (s)	9.3	7.4	0	-	7.3	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		T	↑	↔	
Traffic Volume (vph)	36	93	36	469	529	7
Future Volume (vph)	36	93	36	469	529	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1642	0	1736	1827	1859	0
Flt Permitted	0.986		0.950			
Satd. Flow (perm)	1642	0	1736	1827	1859	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%		0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	40	521	596	0
Sign Control	Stop			Free	Free	

#### Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

**Intersection**

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	36	93	36	469	529	7
Future Vol, veh/h	36	93	36	469	529	7
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	4	4	2	2
Mvmt Flow	40	103	40	521	588	8

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	1194	593	597	0	-	0
Stage 1	593	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.14	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.236	-	-	-
Pot Cap-1 Maneuver	205	504	970	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	196	504	969	-	-	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	22.2	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	969	-	350	-	-
HCM Lane V/C Ratio	0.041	-	0.41	-	-
HCM Control Delay (s)	8.9	-	22.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	-	-

## Young Street PUD - North Side Analysis (3/2020)

Full Build AM (2027)

03/03/2020

## 6: Genovesa Drive &amp; Virginia Water Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	42	6	15	30	4	21	4	41	4	4	5
Future Volume (vph)	4	42	6	15	30	4	21	4	41	4	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1810	0	0	1782	0	0	1677	0	0	1730	0
Flt Permitted		0.997			0.985			0.984			0.986	
Satd. Flow (perm)	0	1810	0	0	1782	0	0	1677	0	0	1730	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	54	0	0	73	0	0	14	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 18.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	42	6	15	30	4	21	4	41	4	4	5
Future Vol, veh/h	4	42	6	15	30	4	21	4	41	4	4	5
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	4	4	4	2	2	2	2	2	2
Mvmt Flow	4	47	7	17	33	4	23	4	46	4	4	6

Major/Minor	Major1	Major2			Minor1			Minor2					
Conflicting Flow All	38	0	0	55	0	0	134	132	52	154	133	36	
Stage 1	-	-	-	-	-	-	60	60	-	70	70	-	
Stage 2	-	-	-	-	-	-	74	72	-	84	63	-	
Critical Hdwy	4.13	-	-	4.14	-	-	7.12	6.52	6.22	7.12	6.52	6.22	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-	
Follow-up Hdwy	2.227	-	-	2.236	-	-	3.518	4.018	3.318	3.518	4.018	3.318	
Pot Cap-1 Maneuver	1566	-	-	1537	-	-	838	759	1016	813	758	1037	
Stage 1	-	-	-	-	-	-	951	845	-	940	837	-	
Stage 2	-	-	-	-	-	-	935	835	-	924	842	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1565	-	-	1536	-	-	820	747	1015	764	746	1036	
Mov Cap-2 Maneuver	-	-	-	-	-	-	820	747	-	764	746	-	
Stage 1	-	-	-	-	-	-	947	842	-	936	827	-	
Stage 2	-	-	-	-	-	-	915	825	-	875	839	-	

Approach	EB	WB			NB			SB			
HCM Control Delay, s	0.6	2.3			9.2			9.3			
HCM LOS					A			A			
<hr/>											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	925	1565	-	-	1536	-	-	843			
HCM Lane V/C Ratio	0.079	0.003	-	-	0.011	-	-	0.017			
HCM Control Delay (s)	9.2	7.3	0	-	7.4	0	-	9.3			
HCM Lane LOS	A	A	A	-	A	A	-	A			
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		T	↑	↔	
Traffic Volume (vph)	24	48	69	417	477	37
Future Volume (vph)	24	48	69	417	477	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	180			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1588	0	1770	1863	1809	0
Flt Permitted	0.984		0.950			
Satd. Flow (perm)	1588	0	1770	1863	1809	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	2356			874	955	
Travel Time (s)	64.3			17.0	18.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	0	76	458	565	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.5%

ICU Level of Service A

Analysis Period (min) 15

**Intersection**

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	24	48	69	417	477	37
Future Vol, veh/h	24	48	69	417	477	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	180	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	7	2	2	4	4
Mvmt Flow	26	53	76	458	524	41

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	1155	545	565	0	-	0
Stage 1	545	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.12	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.218	-	-	-
Pot Cap-1 Maneuver	213	529	1007	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	197	529	1007	-	-	-
Mov Cap-2 Maneuver	197	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	18.8	1.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1007	-	339	-	-
HCM Lane V/C Ratio	0.075	-	0.233	-	-
HCM Control Delay (s)	8.9	-	18.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

## Young Street PUD - North Side Analysis (3/2020)

Full Build PM (2027)

03/03/2020

## 6: Genovesa Drive &amp; Virginia Water Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	44	24	45	36	4	16	4	30	4	4	4
Future Volume (vph)	4	44	24	45	36	4	16	4	30	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1675	0	0	1786	0	0	1408	0	0	1750	0
Flt Permitted		0.997			0.974			0.984			0.984	
Satd. Flow (perm)	0	1675	0	0	1786	0	0	1408	0	0	1750	0
Link Speed (mph)		25			25			25			30	
Link Distance (ft)	679			2356			627			224		
Travel Time (s)		18.5			64.3			17.1			5.1	
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	22%	22%	22%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	93	0	0	55	0	0	12	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 21.8%

ICU Level of Service A

Analysis Period (min) 15

## Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	44	24	45	36	4	16	4	30	4	4	4
Future Vol, veh/h	4	44	24	45	36	4	16	4	30	4	4	4
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	8	8	8	3	3	3	22	22	22	2	2	2
Mvmt Flow	4	48	26	49	40	4	18	4	33	4	4	4

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	44	0	0	76	0	0	215	213	63	228	224	42
Stage 1	-	-	-	-	-	-	71	71	-	140	140	-
Stage 2	-	-	-	-	-	-	144	142	-	88	84	-
Critical Hdwy	4.18	-	-	4.13	-	-	7.32	6.72	6.42	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	5.72	-	6.12	5.52	-
Follow-up Hdwy	2.272	-	-	2.227	-	-	3.698	4.198	3.498	3.518	4.018	3.318
Pot Cap-1 Maneuver	1527	-	-	1517	-	-	701	651	948	727	675	1029
Stage 1	-	-	-	-	-	-	891	798	-	863	781	-
Stage 2	-	-	-	-	-	-	813	743	-	920	825	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1527	-	-	1514	-	-	674	626	946	679	649	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	674	626	-	679	649	-
Stage 1	-	-	-	-	-	-	887	794	-	860	755	-
Stage 2	-	-	-	-	-	-	778	718	-	880	821	-

Approach	EB	WB			NB			SB					
HCM Control Delay, s	0.4	3.9			9.8			9.9					
HCM LOS					A			A					
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Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	809	1527	-	-	1514	-	-	753					
HCM Lane V/C Ratio	0.068	0.003	-	-	0.033	-	-	0.018					
HCM Control Delay (s)	9.8	7.4	0	-	7.5	0	-	9.9					
HCM Lane LOS	A	A	A	-	A	A	-	A					
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1					